

**PATENT APPLICATION**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q96062

Osamu IWASAKI

Appln. No.: 10/588,935

Group Art Unit: 2875

Confirmation No.: 2409

Examiner: Danielle N. Dunn

Filed: August 9, 2006

For: LIGHT GUIDE PLATE, AND PLANAR LIGHTING DEVICE AND LIQUID CRYSTAL  
DISPLAY DEVICE USING THE SAME

**REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.41, Appellant respectfully submits  
this Reply Brief in response to the Examiner's Answer dated January 23, 2009. Entry of this  
Reply Brief is respectfully requested.

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**STATUS OF CLAIMS**

Claims 1-26 are all of the claims currently pending in the present application. Currently, claims 1-26 stand rejected by the Examiner and are the subject of this Appeal.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-3, 5-18, 21, 23, 25, and 26 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 08-062426 to Aihara et al. (hereinafter “Aihara”) in view of JP 05-249320 to Furukawa et al. (hereinafter “Furukawa”). Claim 4 stands rejected as allegedly being unpatentable over Aihara, Furukawa, and JP 11-149073 to Kunishige. Claim 19 stands rejected as allegedly being unpatentable over Aihara, Furukawa, and U.S. Publication No. 2003/0210210 to Ide et al. (hereinafter “Ide”). Claim 22 stands rejected as allegedly being unpatentable over Aihara, Furukawa, and U.S. Patent No. 5,402,324 to Yokoyama et al. (hereinafter “Yokoyama”). Claims 20 and 24 stand rejected as allegedly being unpatentable over Kunishige.

**ARGUMENT**

In addition to the arguments set forth in the Appeal Brief as filed on October 3, 2008, Appellants respond herein to certain points made in the Examiner's Answer of January 23, 2009.

**I. Claim Rejections Under 35 U.S.C. § 103(a) - Aihara and Furukawa**

In the Examiner's arguments A, B, and C, the Examiner maintains the rejection of independent claims 1, 3, 21, and 25 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Aihara and Furukawa.

In the Examiner's argument A, the Examiner maintains that using the V-shaped groove of Furukawa allows more light from the light source to be captured into the light guide, thereby lowering the amount of light loss and increasing the luminance of the light guide. Appellants respectfully disagree.

Comparing the square groove of Aihara with the V-shaped groove of Furukawa, the V-shaped groove of Furukawa broadens toward the end. Therefore, Appellants submit that "a backside region where a circular light source arranged inside a groove is not covered with the groove" is larger for the V-shaped groove of Furukawa than the square groove of Aihara, in accordance with the broadened shape. Thus, more emitted light from the light source escapes to the backside region behind the light source for the V-shaped groove of Furukawa. As a result, the incidence efficiency of the emitted light from the light source to the light guide plate for the square groove of Aihara is obviously higher than for the V-shaped groove of Furukawa, depending on the difference in the amount of the escaping light. For the above reason, Furukawa discloses that the incidence efficiency is improved by employing a U-shaped groove that has a

curved surface more similar to the surface shape of the square groove (Fig. 3; ¶¶ [0012] and [0049]), rather than by employing the V-shaped groove.

Based on the aforementioned disclosure in Furukawa, it is unlikely that a person of ordinary skill in the art would have replaced the square groove of Aihara (providing a high incidence efficiency) with the V-shaped groove of Furukawa (providing a low incidence efficiency). Such a modification would not allow more light from the light source to be captured into the light guide plate, thereby lowering the amount of light loss and increasing the luminance of the light guide plate, as suggested by the Examiner. Therefore, Appellants respectfully disagree with the Examiner's alleged motivation to combine Aihara and Furukawa.

In the Examiner's argument B, the Examiner maintains that the recited ratio is an inherent property of the structure of Aihara and Furukawa. Appellants respectfully disagree. Appellants submit that Aihara and Furukawa do not recognize a problem in which "in a region (a first portion) of a light exit surface of the light guide plate corresponding to an end (a vertex) of the V-shaped groove, more bright emission lines than those in the other portions of the light exit surface (second portions) are generated, thus leading to an unevenness of the light emitted from the light exit surface." The parallel groove of Aihara is a square groove and does not have an end (a vertex) projecting toward the light exit surface. Therefore, bright emission lines corresponding to an end (a vertex) are not generated. Accordingly, the parallel groove of Aihara does not have the problem of bright emission lines that is specific to the V-shaped groove, and therefore there is no problem to be solved by narrowing the end portion of the parallel groove in accordance with the claimed ratio.

In contrast, the V-shaped groove of Furukawa has an end (a vertex); however, the presence of bright emission lines corresponding to the end (the vertex) is not recognized by Furukawa. Based on the aforementioned disclosures in Aihara and Furukawa, it is unlikely that a person of ordinary skill in the art would have replaced the square groove of Aihara (through which bright emission lines are not provided) with the V-shaped groove of Furukawa (through which bright emission lines are generated). Further, with respect to the V-shaped groove disclosed in Furukawa, it is unlikely that a person of ordinary skill in the art would have adjusted the vertex angle of the V-shaped groove to narrow the end portion of the groove in accordance with the claimed ratio, in order to lower the luminance of the bright emission lines and reduce the unevenness in luminance of the emitted light. Accordingly, Appellants submit that even if Aihara and Furukawa could have been combined as suggested by the Examiner, it is unlikely that a person of ordinary skill in the art would have adjusted the vertex angle of the V-shaped groove in accordance with a ratio of a peak value of the illuminance or luminance of emitted light at the first portion to an average value of the illuminance or luminance of the emitted light at the second portions, thereby narrowing the end portion of the groove, as recited in claims 1, 3, 21, and 25.

In the Examiner's argument C, the Examiner alleges that Appellants are only attacking Furukawa. Appellants respectfully disagree. On the contrary, Appellants have demonstrated the deficient teachings of both Aihara and Furukawa, and have shown why it would not have been obvious to a person of ordinary skill in the art to combine Aihara and Furukawa.

In the Examiner's argument D, the Examiner maintains the rejection of claims 25 and 26 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Aihara and Furukawa. As explained in the Appeal Brief of October 3, 2008, the Examiner has not specifically addressed the patentability of the method steps recited in claims 25 and 26. In response, the Examiner asserts that these claims are addressed and rejected on page 2 of the Office Action dated April 1, 2008. However, this page merely makes a conclusory statement that claims 25 and 26 are unpatentable over Aihara and Furukawa without addressing the recited method steps. Further, the Examiner states that "where a prior art apparatus is identical or substantially identical in structure, claimed properties or functional characteristics are presumed to be inherent, and a *prima facie* case of either anticipation or obviousness has been established" (emphasis added). However, this discussion of an apparatus is irrelevant to the method steps recited in claims 25 and 26. Accordingly, Appellants submit that the Examiner has not met the initial burden of presenting a *prima facie* case of obviousness for claims 25 and 26 as required by MPEP § 2142.

Appellants respectfully submit that independent claims 1, 3, 21, and 25 are patentable over Aihara and Furukawa for at least the reasons discussed above, as well as the reasons presented in the Appeal Brief of October 3, 2008. Further, Kunishige, Ide, and Yokoyama each fail to remedy the deficient teachings of Aihara and Furukawa. Therefore, claims 1, 3, 21, and 25 are patentable over Aihara, Furukawa, Kunishige, Ide, and Yokoyama. Further, claims 2, 4-18, 22, 23, and 26 are patentable over Aihara, Furukawa, Kunishige, Ide, and Yokoyama at least by virtue of their respective dependencies on claims 1, 21, and 25, as well as their additionally recited features.

## **II. Claim Rejections Under 35 U.S.C. § 103(a) - Kunishige**

In the Examiner's argument E, the Examiner maintains the rejection of independent claims 20 and 24 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kunishige. Specifically, the Examiner maintains that Fig. 2 of Kunishige shows the end portions of the parallel groove being narrowed toward the rectangular light exit surface symmetrically with respect to a center line of the parallel groove in the direction perpendicular to the light exit surface. Appellants respectfully disagree. Fig. 2 of Kunishige shows an exploded view of the image display device shown in Fig. 1, in particular, an exploded view showing an area light source device (a light source unit 3). Figs. 1 and 2 clearly show that neither of light guide plates 4 and 5 has a parallel groove for accommodating the light source 3. The portion for accommodating the light source 3 is formed in a gap between two thick end portions of the light guide plates 4 and 5, and is covered with a diffusion member 6. Even if the space region provided by "the gap between the two thick end portions of the light guide plates 4 and 5, which accommodates the light source 3" and "the diffusion member 6 covering the gap" were a parallel groove, this parallel groove is not narrowed toward a light exit surface, as recited in claims 20 and 24. The Examiner appears to concede that this parallel groove is not narrowed, because the Examiner states that the end portions are each narrowed by 0%.

Further, since the Examiner asserts that "in Kunishige, two or more light guide plates are connected together with each other at the thin edge portions," the above assertion may be based not on Fig. 2 but rather on Figs. 5 and 6, which show a light source unit in which two light source units as shown in Fig. 1 are connected. However, even if the above assertion is based on



the light source unit disclosed in Figs. 5 and 6 of Kunishige, the recited parallel groove for accommodating the light source 3 is not provided for the reasons discussed above. Further, even if the space region for accommodating the light source 3 were a parallel groove, this parallel groove is not narrowed toward the light exit surface. Still further, although the thin edge portions are connected, there is no parallel groove for accommodating the light source 3 in the connected portion thereof. Accordingly, Appellants respectfully submit that claims 20 and 24 are patentable over Kunishige for at least the reasons discussed above, as well as the reasons presented in the Appeal Brief of October 3, 2008.

**CONCLUSION**

For the above reasons as well as the reasons set forth in Appeal Brief, Appellants respectfully request that the Board reverse the Examiner's rejections of all claims on Appeal. An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

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